REMARKS

Claims 1-14 are pending. Claim 14 is amended. No new matter has been introduced. Allowance of the claims in view of the amendment above and the remarks that follow is respectfully requested.

Claim Objections

Claim 14 is objected to for reasons stated on page 2 of the Office Action. Claim 14 has been amended to replace the phrase "issuing the microinstruction to..." with the phrase "issuing the macroinstructions to ...." Applicants respectfully submit that the grounds for the objection have been obviated. Withdrawal of the objection is respectfully requested.

Double Patenting Rejection

Claims 1-3 and 6-14 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,643,800 (hereinafter "the '800 patent") for reasons stated on pages 2-5 of the Office Action. Claims 4 and 5 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of the '800 patent in view of U.S. Patent No. 6,112,312 to Parker et al. (hereinafter "Parker") for reasons stated on pages 5-6 of the Office Action. Applicants enclose a terminal disclaimer in compliance with 37 CFR § 1.321(c) to overcome the rejections. Withdrawal of the rejections is respectfully requested.

Rejections Under 35 U.S.C. § 103

Claims 1, 3, 6, 7, and 9-14 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 4,887,203 to MacGregor et al. (hereinafter "MacGregor") in view of U.S. Patent No. 5,155,819 to Watkins et al. (hereinafter "Watkins") for reasons stated on pages 6-11 of the Office Action. Claims 2 and 8 stand rejected under 35 U.S.C. § 103(a) over MacGregor in view of Watkins and further in view of U.S. Patent No. 5,133,077 to Karne et al. (hereinafter "Karne") for reasons stated on pages 11-12 of the Office Action. Claims 4 and 5 stand rejected under 35 U.S.C. § 103(a) over MacGregor in view of Watkins and further in view of Parker for reasons stated on pages 12-13 of the Office Action. Applicants respectfully traverse the rejections.

To establish a *prima facie* case of obviousness ... the prior art reference (or references when combined) must teach or suggest all of the claim limitations. *In re Vaeck,* 947 F.2d 488

(Fed. Cir. 1991) and *MPEP* § 2142. In order to combine references, the following tenets of patent law must be adhered to: (A) The claimed invention must be considered as a whole; (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention, and (D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5 (Fed. Cir. 1986) and *MPEP* § 2143.

Independent claims 1 and 7 are directed to an apparatus and a method, respectively, for testing a computer microarchitecture using reprogrammed microcode. The Examiner admits that MacGregor does not disclose accessing microcode through reprogramming (see, e.g., Office Action, page 7, lines 6-7) but alleges that a person of ordinary skill in the art at the time of the invention would have been motivated to reprogram microcode in MacGregor because Watkins discloses that "[s]ignificant flexibility is provided with respect to the definition of the macroinstruction set itself. Because the chip is not littered with dedicated 'glue' logic designed to optimize a particular set of predetermined macroinstructions, individual macroinstructions can be modified solely by rewriting microcode. Instruction decoding and execution time can also be modified in this manner" (Office Action, page 7). Applicants respectfully disagree.

The gist of MacGregor's invention is to allow a user to directly specify the microaddress of a microcoded data processor and thereby obtaining access to special microcoded routines otherwise unavailable during normal execution. In fact, MacGregor has never mentioned anything about reprogramming the microcode and there is no need in MacGregor's invention to reprogram the special microcoded routines. For example, MacGregor teaches:

> the processor includes a special microcoded routine in the processor having a special starting microaddress different from the starting microaddresses of all other microroutines. Since the micromachine cannot itself generate the special starting microaddress, the special microcoded routine may be executed by the micromachine only in response to the execution by the processor of the one instruction to provide the special starting microaddress of the special microcoded routine. (col. 2, lines 13-22).

A skilled artisan would understand that the "special microcoded routine" has been programmed in the processor and is only executable upon the entry of an instruction that provides a special microaddress. Accordingly, the test microcode in these "special microcoded routine" are pre-programmed, not reprogrammed in the processor. Accordingly,

the purported motivation to combine is not found in the prior art references, as required by MPEP 2143.

Furthermore, there is no indication in the Office Action of where a reasonable expectation of success can be found in the cited references, as required by MPEP 2143.02. It should be noted that Watkins' chip is reprogrammable because it is not littered with dedicated "glue" logic designed to optimize a particular set of predetermined macroinstructions. MacGregor is silent as to whether its processor contains any "glue" logic. Consequently, there is no reasonable expectation of success if one skilled in the art were to combine MacGregor and Watkins, as suggested by the Examiner.

With respect to independent claim 10, the Examiner alleges that MacGregor teaches the limitation "directing the particular sequence of microinstructions to an arbitrary set of microinstructions, wherein the arbitrary set of microinstructions comprises the test," and quoted the abstract of MacGregor as support (Office Action, page 10). Applicants respectfully disagree.

The quoted passage refers to providing instructions to a processor in order to execute special microcoded routines. The quoted passage does not mention anything about "directing the particular sequence of microinstructions to an arbitrary set of microinstructions, wherein the arbitrary set of microinstructions comprises the test." Indeed, the instruction of MacGregor is directed to a designated set of microinstructions (i.e., the special microcoded routines) but not "an arbitrary set of microinstructions." Accordingly, Applicants respectfully submit that MacGregor fails to teach or suggest "directing the particular sequence of microinstructions to an arbitrary set of microinstructions, wherein the arbitrary set of microinstructions comprises the test."

Watkins does not cure the deficiency of MacGregor. Watkins relates to a general purpose microcomputer architecture that is flexible enough to permit individual users to modify the definition of macroinstructions. Watkins does not teach or suggest anything about "directing the particular sequence of microinstructions to an arbitrary set of microinstructions, wherein the arbitrary set of microinstructions comprises the test."

Consequently, Applicants respectfully submit that MacGregor and Watkins, individually or in combination, do not render claims 1, 7 and 10 obvious. Applicants further submit that claims 3, 6, 9, and 11-14 are patentable over MacGregor and Watkins because they depend from one of claims 1, 7 and 10, and define additional patentable subject matter. Withdrawal of rejection under 35 USC § 103(a) to claims 1, 3, 6, 7 and 9-14 is respectfully requested.

Claims 2 and 8 depend from claims 1 and 7, respectively. As stated above, claims 1 and 7 are patentable over MacGregor and Watkins, because MacGregor and Watkins provide no motivation, nor a reasonable expectation of success for the purported combination. Karne is cited for its teaching on the usa of a plurality of execution units. Karne does not cure the deficiency of MacGregor and Watkins. Accordingly, claims 2 and 8 are patentable over MacGregor, Watkins and Karne. Withdrawal of rejection under 35 USC § 103(a) to claims 2 and 8 is respectfully requested.

Claims 4 and 5 depend from claim 1. As stated above, claim 1 is patentable over MacGregor and Watkins, because MacGregor and Watkins provide no motivation, nor a reasonable expectation of success for the purported combination. Parker is cited for its teachings on modeling hardware. Parker does not cure the deficiency of MacGregor and Watkins. Accordingly, claims 4 and 5 are patentable over MacGregor, Watkins and Parker. Withdrawal of rejection under 35 USC § 103(a) to claims 4 and 5 is respectfully requested.

In view of the above remarks, Applicants respectfully submit that the application is in condition for allowance. Prompt examination and allowance are respectfully requested.

Should the Examiner believe that anything further is desired in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

Date: **April 12, 2006**

For John K. Harrop, Reg. #47,195

John K. Harrop
Registration No. 41,817
Andrews Kurth LLP
1350 I Street, N.W.
Suite 1100
Washington, DC 20005
Tel. (202) 662-2700
Fax (202) 662-2739

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